UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support School
PSC Box 20041
Camp Lejeune, North Carolina 28542-0041

LS 404

STUDENT OUTLINE

HOOK UP EQUIPMENT TO A HOVERING HELICOPTER

LEARNING OBJECTIVES

1. Terminal Learning Objective: Given the requirement to hook equipment to a hovering aircraft, necessary tools equipment, a load to be lifted, as the member of a team ensuring safe and secure transport of equipment, hook up equipment to a hovering helicopter per the references. (0481.01.07)

2. Enabling Learning Objective: Without the aid of references, describe the components of, inspect, and explain operating instruction of a static grounding wand per the references. (0481.01.07a)

a. Describe the job/position of the staticwand man. (0481.01.07b)

b. Describe the safety precautions and personal protection equipment for hook up personnel. (0481.01.07c)

c. Describe the hook up team procedures and describe the helicopter pendant system. (0481.01.07d)

OUTLINE

1. COMPONENTS, INSPECTION, & OPERATING STATIC WAND.

REFER TO STUDENT HANDOUT FOR PICTURE

a. In flight, the stored static electric energy of any helicopter increases with helicopter weight, low humidity, and amount of debris blown by the rotor system (i.e. dust, sand, or snow). Extremely HIGH static electrical discharges may also occur when operating in or near thunderstorms. When the helicopter touches the ground, this charge is grounded out. However when the helicopter is hovering, this charge remains

stored in/on the aircraft. Without safety equipment the ground crew could be the link between the helicopter and the ground. The charge may cause severe electrical burns, injury, or be fatal.

(1) Components of static grounding wand.

(a) Insulated plastic/fiberglass tube handle.

(b) 90 degree metal hook.

(c) 22 foot grounding cable.

(d) Gator clamp.

(e) RED warning ring.

(f) Grounding rod.

(g) Proper grounding is essential to effectively discharge static electricity. Attachment of the cable clamp to the cargo load is not sufficient.

(2) Inspection and maintenance of static wand.

(a) Inspection.

1. Punctures, cracks, or cuts in the wand handle.

2. Punctures, cracks, or cuts in the grounding cable.

3. Black end plugs come out.

4. 90 degree hook rotates.

5. Gator clamp has no tension.

6. Any of the above noted discrepancies will render the static grounding wand **UNSERVICEABLE**.

(b) Maintenance.

1. Remove all fuel, grease, or oil.

2. Remove salt-water residue or dirt.

3. Store wand in a dry place.

4. Store out of sunlight.

5. Store with grounding cable rolled lariat-style.

(3) Operating instructions.

(a) Always inspected first.

(b) Find spot, rendezvous side of load, approx. 8 – 10 feet from load.

(c) Insert grounding rod into ground a minimum of 6 - 8 inches into ground.

(d) Attach gator clamp to grounding rod.

(e) When operating on concrete or asphalt, position load near edge, using grounding cable extension follow above steps.

(f) When operating aboard ship gator clamp is attach to deck pad eye or designated grounding point.

(g) Keep static wand at least 12 inches away from the body.

(h) Keep hands below the red warning ring.

2. JOB/POSTION OF STATICWAND MAN, HOOKUP MAN, LEGMEN.

a. Staticwand man.

(1) Maintains static wand and grounding rod.

(2) Positions himself/herself beside the load.

(3) Drives the grounding rod into the ground then kneels down.

(4) When the helicopter is directly overhead and the downwash subside he/she stands up.

(5) He/she waits for the pendant to reach eye to chest level, then he/she hooks the pendant with the static wand.

(6) Ensuring constant contact is maintained with pendant hook.

(7) Once the hookup man has placed the sling apex into the pendant hook, then the static wand is removed.

(8) Then moves out of the landing point to the rendezvous point.

b. Hookup Man.

(1) Positions himself/herself by the load and static man.

(2) Organizes the sling legs for proper positioning on apex in reference to the load.

(3) Maintains the sling apex up on the shoulder, so that both hands can be used to control the pendant hook.

(4) Then kneels down.

(5) Stand up once staticwand man does.

(6) Once the staticwand man grounds the hook.

(7) Grasp the hook, close it, and insert the sling apex into the hook.

(8) Then move out of the landing point to the rendezvous point with the staticwand man.

c. Sling legmen.

(1) Position themselves near the load on a stable surface.

(2) Hold the assigned sling leg clear of obstructions.

(3) Do not hold the chain leg portion of the sling leg.

(4) Control sling leg until all slack is out.

(5) Once there is enough tension and the load is about to lift off the ground, release the sling leg.

(6) Never pass in front of the load, because of the load swinging.

(7) Then move out of the landing point to the rendezvous point together.

(8) For a single point lift eight (8) team members are required and for a dual point lift ten (10) members. Those are the minimum number of team members, anything less is dangerous.

d. The HST leaves the zone to the rendezvous point in a specific order.

(1) Hookup Man/Static Man. Leave the landing point first and together.

(2) Inside Director. Leaves once the legmen begin to leave.

(3) Outside Director. Leaves when load is clear of all obstacles and the take off signal has been given.

(4) Leg Man. Leave when all the slack is out of the sling leg and the load is about to leave the ground.

3. <u>PRECAUTIONS FOR HOOK TEAM AND PERSONAL PROTECTION EQUIPMENT</u>.

a. Safety precautions for hookup personnel.

(1) Avoid flying debris.

(2) Avoid sharp objects protruding from the load.

(3) Avoid top-heavy or unbalanced loads.

(4) Avoid being caught between load and helicopter.

(5) Always be aware of the helicopters landing gear and pendant hook.

(6) Stay clear of swinging cargo hooks.

(7) Be aware of slippery surfaces & high winds.

(8) Be aware of all obstacles in landing site.

(9) Double check load for proper rigging.

(10) Always know the emergency procedures and watch all of the team members.

(11) Always keep aware of the helicopter and load movement at all times.

(12) Always use the static grounding wand and personal safety equipment.

b. Personal protection equipment.

REFER TO STUDENT HANDOUT FOR PICTURES

(1) Head. Cranial or kevlar helmet.

(2) Eyes. Wind goggles.

(3) Ears. Earplugs and/or cranial headgear.

(4) Hands. Staticwman and hookup man wear lineman gloves.

(5) A flak jacket may be worn.

(6) Dog tags.

(7) Remove all jewelry.

(8) Always wear sleeves down to protect the arms.

4. HOOKUP TEAM PROCEDURES, HELICOPTER PENDANT SYSTEM AND PUBLICATIONS.

a. Hookup team procedures.

(1) Clear landing site of debris.

(2) Rig and derig loads.

(3) Direct the aircraft over the load for hookup and over the lading point to release the load.

(4) Hook up the load to the cargo hook.

(5) Ensure that no damage is done to the equipment being lifted.

(6) Ensure that all operations are being done safely.

b. Helicopter pendant hook system.

REFER TO THE STUDENT HANDOUT FOR PICTURES

(1) CH-46 Sea Knight.

(a) Cargo hooks maximum capacity 10,000 pounds.

(b) Released electrically or manually by aircrew.

(c) Hook has a closed and opened position.

(d) Hook swivels to prevent sling malfunction.

(2) CH-53D Sea Stallion.

(a) Cargo hooks maximum capacity 20,000 pounds.

(b) Released electrically or manually by aircrew.

(c) Hook has a closed and opened position.

(d) Hook swivels to prevent sling malfunction.

(3) CH-53E Super Sea Stallion.

(a) Cargo hooks maximum capacity 32,000 pounds.

(b) Released electrically or manually by aircrew.

(c) Hook has a closed and opened position.

(d) Hook swivels to prevent sling malfunction.

(e) Has single point pendant system in the center of the helicopter.

(f) Has a dual point pendant system of two (2) hooks one forward position and one aft position located 10 feet apart.

(g) Has a cable winch to lift the hook into the aircraft.

c. Publications for multiservice helicopter sling loads.

REFER TO STUDENT OUTLINE FOR PICTURES

(1) MCRP 4-11.3E Volume I. Multiservice Helicopter Sling Load: Basic Operations and Equipment.

(2) MCRP 4-11.3E Volume II. Multiservice Helicopter Sling Load: Single-Point Load Rigging Procedures.

(3) MCRP 4-11.3E Volume III. Multiservice Helicopter Sling Load: Dual-Point Load Rigging Procedures.

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